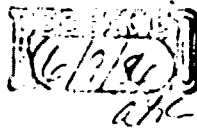


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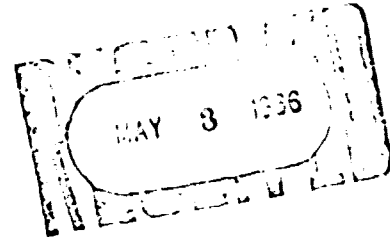
THE DOW CHEMICAL COMPANY

MIDLAND, MICHIGAN 48674

April 10, 1986
48 JUN 16

868600011 thru 42

Document Control Officer
U.S. Environmental Protection Agency
TSCA-8D1
P.O. Box 2060
Rockville, MD 20852



RE: OPTS-S4020A

Dear Sir or Madam:

As required by 40 CFR 716 as amended, effective March 7, 1986, we herewith submit copies of reports which meet the requirements of the referenced rule as Health and Safety Studies.

The reports have been separated into two categories for your convenience. Enclosed are one set each of public file copies and those that contain confidential business information (CBI). The CBI copies are enclosed in the inner envelope along with the Dow confidential information claim.

Each report is marked with an identifying number at the top of the first page of the report, e.g., D1923. Use of this identification number in future correspondence regarding this submission will facilitate handling of questions.

Many of the submitted reports contain information which is not relevant to Health or Safety Studies of listed chemicals, e.g., references to unlisted chemicals, marketing or process data, account numbers, internal document identification codes or distribution lists. Such information has been deleted from all copies submitted.

The index required by 40 CFR 716.4(b) is enclosed. It lists the Dow identification number and title of each report submitted in TSCA order.

Very truly yours,

R. L. Hagerman
R. L. Hagerman
Research Associate
Regulatory and Legislative Issues
Health and Environmental Sciences
1803 Building
(517) 636-6855

14r

enclosures

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Biochemical Laboratory
THE DOW CHEMICAL COMPANY

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Part B

Subject

THE TOXICITY OF *unlisted substance*
HEXACHLOROPROPANE

File Internal Codes Deleted
Chg.
Rec'd
Fin'd 2-17-37
By E. M. Adams

To

Internal Source Deleted

From

*CONFIDENTIAL**Rec'd 6-9-86*

D 001982

The topical actions of these two materials were tested roughly on the ear and abdominal skin of the rabbit. An estimation of toxic absorption of hexachloropropene was also made on the caviae.

ACUTE TOPICAL ACTION

Both materials produced an irritation of marked intensity on the skin, edema, inflammation, and even necrosis. Hexachloropropene produced the reaction much more readily than did the heptachloropropene, possibly because it was a liquid. Within 30 minutes, hexachloropropene caused a moderate irritation, *reference to unlisted chemical deleted*

Contact of hexachloropropene for 24 hours on the abdomen resulted in severe edema, leading to necrosis;

reference to unlisted chemical deleted

LATENT OR CHRONIC ACTION

Repeated mild exposures to hexachloropropene readily produced a severe reaction on the ear, edema and sloughing. This was followed by a secondary reaction of exfoliation, hyperemia, and a moderate follicular reaction.

Reference to unlisted chemical deleted

Both reactions were characterized by an epithelial hyperplasia.

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TOXIC ABSORPTION

Rabbits receiving exposures on the abdomen to hexachloropropene died; none died when exposed in a similar manner to heptachloropropane. Tests on cavyes revealed a moderate toxic absorption.

Two hours contact with a dose of 0.6 cc/kg of hexachloropropene killed each of 2 cavyes. A similar exposure to 0.2 cc/kg failed to kill.

SUMMARY:

Both materials were rather markedly irritating to the rabbit's skin and produced a secondary or latent reaction that might be termed "dermatitis-like".

In addition there was evidence that toxic amounts of hexachloropropene were readily absorbed.

In the absence of further refinement of our methods it is difficult to state definitely the hazard of these materials for man. However, it would appear that they should be handled with some respect, especially hexachloropropene. They may produce irritations and possibly a "dermatitis", with a not too great exposure, and further a "systemic" intoxication might occur.

**Biochemical Laboratory
THE DOW CHEMICAL COMPANY****Subject TOPICAL ACTION OF HEXACHLORPROPENE****To****From****File
Chg.
Rec'd
File'd 2-15-37
By E. M. Adams**

The topical actions of hexachlorpropene were tested on the rabbit. An estimation of toxic absorption was made with cavies.

This material readily produced a marked irritation of the skin. 30 minutes contact on the abdominal skin resulted in a moderate edema followed by a hyperemia. Longer contacts, 24-48 hours, resulted in necrosis.

Short exposures on the ear rapidly produced an edema and sloughing. A latent reaction followed this more violent reaction, and was produced by more mild exposures. It was characterized by exfoliation, hyperemia, possibly edema, and a follicular reaction resulting in enlarged and even raised masses. Microscopic examination showed evidence of an epithelial hyperplasia.

Evidence of a toxic absorption was seen when some of the rabbits died after exposures on the abdomen.

In tests on cavies it was found that exposure for 2 hours to 0.6 cc. per kg. allowed the absorption of lethal amounts through the skin. 0.3 cc. per kg. permitted survival. A severe denaturation of the skin was apparent in the surviving animals.

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Hexachlorpropene

Topical action. Abdomen.

Rabbit #2-153.

Hexachlorpropene, held in small cotton pads, was placed in contact with the abdominal skin for periods of 5, 30, 60, and 120 minutes.

7-6-36. Made contacts.

When removed:

- ② 5 min. contact: mild, transient erythema.
- 30 " " : moderate edema. Colorless.
- ③ 60 " " : marked edema. Colorless.
- ③ 120 " " : marked edema. Colorless.

7-7-36. 24 hours after contact:

- 5 min. contact: faint erythema.
- 30 " " : faint erythema.
- 60 " " : marked edema, surrounding areas hyperemic.
- 120 " " : marked edema, surrounding areas hyperemic.

7-8-36 48 hours after contact:

- 5 min. contact: very faint redness.
- 30 " " : very faint redness.
- 60 and 120 min. contact: marked redness; still so at 48 hours.

Hexachlorpropene

(4)

Topical action. Abdomen.

Rabbit #2-215.

The liquid material was applied to the abdomen in cotton pads held in place by means of a bandage.

<u>Date.</u>	<u>Contact #</u>	<u>Reaction</u>
6-29-36	1	
6-30-36	2	Marked colorless, edematous areas. No erythema.
7-1-36	-	Marked cyanosis, loss of balance and of locomotion. Severe edema and necrosis of abdominal skin. Died.

Autopsy

Liver: normal

Kidney:

Lung: moderate passive congestion.

Stomach: petechial hemorrhages and ulcerations.

Microscopic examination

Liver: congestion

Kidney: congestion

Stomach: congestion

Lung: pneumoniae changes. Numerous macrophages.

00007

Hexachlorpropene

(4)

Topical Action. Ear.Rabbit #2-273

Treatments were made on the ear, each treatment consisting of contact for 5 minutes after which the area was cleaned off using cotton moistened with 95% ethanol.

<u>Date</u>	<u>Contact #</u>	<u>Reaction</u>
8-12-36	1	Marked redness in 5 minutes.
8-14-36	-	Marked edema, inflammation, sloughing and crusting.
8-15-36	-	Redness and edema. Crusts. Follicles appear somewhat more prominent, not raised.
8-17-36	-	Healing.
8-18-36	-	healing. This above reaction occurred deep in the ear; apparently some of the hexachlorpropene had not been removed.
8-19-36	2	On distal portion of ear, dry, fine, flaking exfoliation.
8-20-36	3	Same appearance.
8-21-36	4	Hyperemia, enlarged follicles. Rough, heavy glazed desquamation.
8-22-36	5	Same appearance of distal areas.
8-27-36	-	quite red and "puffy". Follicles apparently enlarged, not raised. Skin is smooth and shiny.

Microscopic examination

Marked epithelial hyperplasia.

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Hexachlorpropene

Topical Action. Ear.

Rabbit #2-153.

Daily treatments were made on the ear with hexachlorpropene, each treatment consisting of contact for 5 minutes, after which the area was cleaned off using cotton moistened with 95% ethsnol.

<u>Date</u>	<u>Contact #</u>	<u>Reaction</u>
7-9-36	1	No
7-10-36	2	No apparent reaction.
7-11-36	3	No apparent reaction
7-12-36	4	Marked reaction. Tense, hyperemia, exudation and even sloughing.
7-14-36	-	Same reaction.
7-15-36	-	Same reaction. Ear seems thickened, crusting.
7-16-36	-	Exudation, hyperemia, heavy crusts, and encrustation.
7-19-36	-	Some redness, enlarged and raised hair follicles. No crusts or scale.
7-21-36	-	Killed for sectioning of ear.

Microscopic examination.

Ear: marked epithelial hyperplasia. Very large pits.

TOXIC ABSORPTION

Evidence of a toxic absorption was obtained when one of the rabbits used for the topical tests died unexpectedly. An estimation of the toxic absorption was made on cavy. Various amounts of the hexachlorpropene were applied to limited areas on the clipped abdomen for 2 hours, after which the areas were wiped dry with cotton and the animals released. The results are tabulated below:

<u>Dose</u> <u>cc/kg.</u>	<u>Area</u> <u>sq. cm.</u>	<u>Died</u> <u>No. cavy</u>	<u>Lived</u> <u>No. cavy</u>
0.6	30	2 (48 hrs)	
0.4	16	1	1
0.2	9		2

In all instances a severe local action occurred, resulting in a necrosis which healed with scar formation.

JP

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